

BEFORE THE  
Federal Communications Commission

WASHINGTON, D.C.

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SEP 28 1992

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of )

)  
Amendment of Parts 21, 22, 23, )  
and 25 of the Commission's Rules )  
to Require Reporting of Station )  
Frequency and Technical Parameters )  
for Registration by the Commission )  
with the International Frequency )  
Registration Board )

CC Docket No. 92-160

COMMENTS OF AMSC SUBSIDIARY CORPORATION

AMSC Subsidiary Corporation ("AMSC"), by its attorneys, hereby submits its Comments on the Notice of Proposed Rulemaking in the above-referenced proceeding, 7 FCC Rcd 5066 (1992) ("Notice"). AMSC supports the Commission's proposal to create an automated database to facilitate the reporting of frequency assignments to the International Frequency Registration Board ("IFRB"), and recommends that the Commission allow sufficient flexibility to accommodate the unique operating characteristics of systems such as that which AMSC is building.

AMSC is the licensee of the U.S. Mobile Satellite Service ("MSS") system, and has had considerable experience in the international frequency coordination process. AMSC welcomes the Commission's initiative to improve the efficiency and

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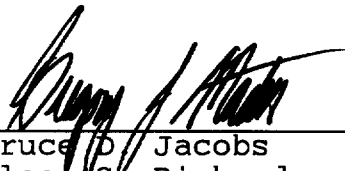
effectiveness with which it will report domestic frequency assignments to the IFRB. As the Notice points out, the increased foreign usage of spectrum -- particularly spectrum assigned to domestic geostationary satellite systems such as that of AMSC -- makes imperative the need for accurate and efficient correspondence between the Commission, the IFRB and foreign administrations. The automated database proposed by the Commission will enhance the Commission's ability to protect domestic licensees from foreign interference and will help to improve the international coordination and registration processes.


AMSC is concerned, however, that certain of the reporting requirements proposed for satellite systems do not accurately reflect the characteristics of MSS systems. Specifically, a number of these reporting requirements are appropriate for Fixed Satellite Service earth stations and the feeder link earth stations in an MSS system, but do not take into account the nature of MSS systems -- particularly MSS mobile earth stations, which by definition may change location constantly. The attached Technical Appendix contains specific recommendations for modifications to the data reporting requirements to more accurately reflect the operating characteristics of MSS mobile earth stations and space stations. AMSC urges the Commission to adopt these suggested modifications, which will better assist the

Commission in efficiently coordinating and registering domestic frequency use.

Respectfully submitted,

AMSC SUBSIDIARY CORPORATION

  
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Dated: September 28, 1992

## TECHNICAL APPENDIX

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This appendix addresses the information the Commission proposes to require of satellite licensees in establishing an automatic database that will assist in coordinating and registering domestic frequency use with the International Frequency Registration Board ("IFRB"). The appendix discusses some of the specific data requirements contained in Attachments 3 and 4 of the Notice of Proposed Rulemaking ("Notice"), and provides specific recommendations for modifications to the proposed data requirements that more accurately reflect the operating characteristics of mobile earth stations and space stations in the Mobile Satellite Service ("MSS").

### Appendix B, Attachment 3, File Number 1

In the third grouping of data fields on page 18 of the Notice, provision should be made for a data entry of a mobile earth station area of operation. This would be consistent with the nature of mobile earth station operation at unspecified points. Such an entry should obviate the need for station location entries with respect to MSS mobile earth stations (i.e., the second and fourth groupings of data on page 18).<sup>1/</sup>

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<sup>1/</sup> In cases where earth stations are subject to blanket licensing, the point of contact information in the third data grouping on page 18 should be an individual in the licensee's organization rather than the individual earth station operators.

(continued...)

The second grouping of data on page 19, pertaining to earth station antennas, does not encompass the types of antennas used on MSS mobile earth stations. Specifically, the choices between circular and rectangular apertures and the associated dimensional data are not inclusive of the broad cross-section of mobile earth station antenna types such as helix, vertical monopole array (steered and unsteered pattern), linear azimuthally steered array, disk-cone, two-dimension steered array, cross-drooping dipole types, and other types that may be developed. Licensees should be permitted to leave these data fields blank where necessary. In addition, room should be provided in these fields (e.g., a 40-character ASCII comment field) for the entry of alternative descriptive information for antennas.

The data fields for "Building height above ground level" and "Maximum antenna height above building rooftop" on page 19 are inappropriate with respect to mobile earth stations, and licensees of such stations should be permitted to leave these fields blank. The data field for "Maximum antenna height above ground level" is all that is used in analysis of potential interference and calculation of coordination contours for mobile earth stations operating on land. In the case of aircraft and ship earth stations, the maximum expected height of the aircraft

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1/(...continued)

Furthermore, the units to be used for entries in the data field for "Maximum EIRP density toward the horizon" (the last data field on page 18 of the Notice) are not specified; presumably the Commission intends the units to be dBW/Hz.

or ship antenna should be entered in the field for "Maximum antenna height above mean sea level."

Appendix B, Attachment 3, File Number 2

Horizon profile data should not be required with respect to MSS mobile earth stations because such data pertain to a particular location. The purpose of horizon profile data is to show the physical horizon elevation angles used in the calculation of coordination contours. However, under RR Appendix 28, § 7, the coordination contours for mobile earth stations operated on the Earth's surface are the envelope of contours for all mobile earth station locations in the service area. Since the individual contours for mobile earth stations entail numerous horizon profiles that are impractical to supply, horizon profiles for mobile earth stations are not required to be submitted to the IFRB.

Appendix B, Attachment 3, File Numbers 5, 7, and 8

File Number 5 (Part 25 coordination contours) should not be required for mobile earth stations. In cases where mobile earth stations are operable throughout the U.S. without restriction (e.g., in the 1530-1559 MHz and 1626.5-1660 MHz bands), domestic coordination is not required. In cases where mobile earth station operations are subject to domestic coordination (e.g., aircraft earth stations operating in the 1660-1660.5 MHz band,

which is shared with the Radio Astronomy Service on a co-primary basis), it is understood that domestic coordination is required in blanket fashion independently of a Part 25 contour.<sup>2/</sup>

The bearing-distance format for coordination contours contained in File Numbers 7 and 8 (ITU coordination contours) is not appropriate for mobile earth stations. It would be more appropriate (and more convenient to the FCC and IFRB) to require a set of latitude and longitude point pairs that define a series of line segments corresponding to the coordination contour. This alternative data is more appropriate because the methods for determining coordination contours for mobile earth stations (i.e., RR Appendix 28, § 7, CCIR Recommendations A/12 and D/12) produce contours that are not in bearing-distance format.<sup>3/</sup> For example, computer programs developed by the DOD Electromagnetic Compatibility Analysis Center provide a contour for mobile earth stations in the form of a geographic coordinate output file.

In addition, the data format in File Numbers 7 and 8 should be modified to permit specification of the method and

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<sup>2/</sup> See Memorandum Opinion, Order and Authorization, Gen. Docket No. 84-1234, 4 FCC Rcd 6041, 6049 (1989). A Part 25 coordination contour for domestic mobile earth station transmitters sharing with Radio Astronomy would encompass the U.S. and, therefore, would not assist in domestic coordination.

<sup>3/</sup> The ITU Radio Regulations do not provide for cases not covered by Appendix 28. However, for these cases, the IFRB accepts contours generated in accordance with CCIR Recommendations.



supplementary parameters used to determine the coordination contour. The methodology of RR Appendix 28 or a CCIR Recommendation might be indicated.<sup>4/</sup> The methodology used could be conveyed by predefined symbols in a fixed data field (e.g., 20 characters (for example, CCIR REC XXXX-YY)), and a comment field (e.g., up to 40 ASCII characters) could be provided to cover future optional or required methodologies that cannot be identified at this time. The mobile earth station and terrestrial station parameters used as the basis for the contours in File Numbers 7 and 8 may need to be specified in some cases, such as when earth stations use frequency bands not covered by Tables I and II of RR Appendix 28 (e.g., 1.5/1.6 GHz). These supplementary data could be provided in a comment field (e.g., up to 120 ASCII characters to allow for several entries).

Appendix B, Attachment 3, File Numbers 6, 9 and 10

File Numbers 6, 9 and 10 do not contain a complete list of types of IFRB submissions. For example, the proposed file structures do not provide for submissions under Resolution 46, which was adopted at the 1992 WARC (Resolution COM5/8). Moreover, the possible types of submissions may grow as a result of future WARCs. Thus, more flexibility is needed for these data

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<sup>4/</sup> In File Numbers 7 and 8, the methodology of RR Appendix 28 should be used unless that methodology does not apply. For example, aircraft earth terminals operating in the 1.5/1.6 GHz bands are not addressed in RR Appendix 28 and the methodology of CCIR Recommendation D/12 would be used by default.

entries. This flexibility can be provided in at least two ways: (i) a comment field (e.g., up to 40 ASCII characters) could be added to cover exceptional cases; or (ii) a single data field (e.g., 7 characters) for the appropriate RR number (e.g., RR-XXXX) or Resolution (e.g., RES-XXX) could be added.

In addition, the final data entry in File Number 6 (height above mean sea level) is inapplicable to land mobile earth stations. Thus, a blank entry should be accepted with respect to such facilities.

#### Appendix B, Attachment 4, File Numbers 1, 2 and 4

The comments addressing File Numbers 6, 9 and 10 of Attachment 3 (regarding types of IFRB submissions) are also applicable to File Numbers 1, 2 and 4 of Attachment 4.

#### Appendix B, Attachment 4, File Number 3

The single-frequency entries in the "List of Assigned Frequencies" (Notice, p. 38) appear inappropriate for MSS space stations using narrowband channels. The outcome of international frequency coordination is likely to allow assignments in one or more frequency segments for different types of carriers, each of which may be assigned within each segment at intervals of the minimum earth station tuning increment. For example, as a result of its coordination, AMSC may be able to assign particular types of carriers in frequency segments totalling 2.5 MHz at frequency intervals of 0.5 kHz, which would yield 5000 possible

assignments. This number of entries would exceed the number possible in the Commission's proposed format (i.e., 999). A more practical alternative for MSS would be to provide a comment field for a textual description of the assignable frequencies.

#### General Comments

In general, it would be worthwhile for the Commission to provide additional space in its proposed data format for discussion of specific information. Situations not foreseen in this appendix may arise that are not provided for by the automated data format. Flexibility in the format to address specialized information would improve the quality and efficiency of information provided to the Commission for coordination and IFRB registration.

DECLARATION

I, Thomas M. Sullivan, do hereby declare as follows:

1. I have a Bachelor of Science degree in Electrical Engineering and have taken numerous post-graduate courses in Physics and Electrical Engineering.

2. I am presently employed by Atlantic Research Corporation and was formerly employed by the IIT Research Institute, DoD Electromagnetic Compatibility Analysis Center.

3. I am qualified to evaluate the technical information in the Comments of AMSC Subsidiary Corporation on the database proposed by the FCC to facilitate reporting of frequency assignment information to the IFRB. I am familiar with Part 25 and other relevant parts of the Commission's Rules and Regulations.

4. I am familiar with the data requirements of RR Appendices 3 and 4 and the coordination area and interference calculations associated with international frequency coordination.

5. I have participated in CCIR Task Group 12/3 in the development of new coordination area calculation methods.

6. I have been involved in the preparation of and have reviewed the Comments of AMSC Subsidiary Corporation on the proposed FCC database. The technical facts contained therein are accurate to the best of my knowledge and belief.

Under penalty of perjury, the foregoing is true and correct.

9/28/92

Date

Thomas M. Sullivan

Thomas M. Sullivan